Message

From: Beeler, Cindy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=9B11E688258C462BAB293A6DF8FF4B27-BEELER, CYNTHIA]
Sent: 7/3/2018 10:04:08 PM
To: Arvind P. Ravikumar [arvindr@stanford.edu]; Marsh, Karen [Marsh.Karen@epa.gov]
Subject: RE: Technology Equivalence for OGI - Calgary, Canada

Arvind –

Thank you VERY much for extending this invitation – I am very interested in this effort as we work closely with Colorado on their approval of alternatives to OGI and Method 21, my work with ECCC on their new methane regs for oil & gas, our METEC OGI project, and of course implementing EPA's NSPS OOOOa LDAR rules.

However, the best EPA fit for this working group could be provided by EPA's NSPS OOOOa policy folks in OAQPS (Office of Air Quality Planning and Standards). So, I'd like to introduce you to the lead of the LDAR rule-writing for oil & gas, Karen Marsh.

Karen – Arvind teaches at Stanford. He has been doing some OGI research at METEC and has authored several oil & gas air emission research papers:

Ravikumar, A. P., Wang, J., McGuire, M., Bell, C. S., Zimmerle, D., & Brandt, A. R. (2018). Good versus Good Enough? Empirical tests of methane leak detection sensitivity of a commercial infrared camera. Environmental science & technology.
Ravikumar, A. P., & Brandt, A. R. (2017). Designing better methane mitigation policies: the challenge of distributed small sources in the natural gas sector. Environmental Research Letters, 12(4), 044023.
Ravikumar, A. P., Wang, J., & Brandt, A. R. (2016). Are Optical Gas Imaging Technologies Effective For Methane Leak Detection?. Environmental science & technology, 51(1), 718-724.

Arvind was also a part of the team behind the FEAST model:
Kemp, C. E., Ravikumar, A. P., & Brandt, A. R. (2016). Comparing Natural Gas Leakage Detection Technologies Using an Open-Source "Virtual Gas Field" Simulator. Environmental science & technology, 50(8), 4546-4553.

Keep up the good work you two and I appreciate being kept in the loop on what's going on with this Canadian effort!

Cindy Beeler
US EPA Region 8
Tel: 303-312-6204
Beeler.Cindy@epa.gov

From: Arvind P. Ravikumar [mailto:arvindr@stanford.edu]
Sent: Monday, June 11, 2018 1:58 PM
To: Beeler, Cindy <Beeler.Cindy@epa.gov>
Subject: Technology Equivalence for OGI - Calgary, Canada

Hi Cindy,

Thanks for arranging the call. It's great to get together and talk science.

I wanted to bring another event to your attention.

As you might be aware, Canada recently finalized regulations for methane emissions mitigation and have included the use of 'alternative detection technologies' for LDAR operations.
We are currently working out what a technology equivalence between OGI based survey and newer tech (drones, trucks, etc.) might look like, and how can companies establish 'equivalence'.
We will be organizing a workshop in Calgary sometime in the summer to discuss this and develop a framework. Is this something you will be interested in attending/participating?

Regards,
Arvind

On Thu, Jun 7, 2018 at 3:55 PM Beeler, Cindy <Beeler.Cindy@epa.gov> wrote:

> Arvind -
>
> Thanks for your prompt response (I forgot it would be 7am for that first meeting time option!). I just sent the calendar invitation out for Mon, 6/11, 1-2pm MT.
>
> In the invitation, I include a link to Seth's PowerPoint where he starts looking at factors to explain the difference in % facilities with IR observations in the Uinta Basin - 6.6% by Lyons et al summer 2014 study and 0.5% from our winter 2018 study.
>
> We appreciate you sharing your expertise in this conversation.
>
> **Cindy Beeler**
> US EPA Region 8
> Tel: 303-312-6204
> Beeler.Cindy@epa.gov
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> **From:** Arvind P. Ravikumar <arvindr@stanford.edu>
> **Sent:** Thursday, June 7, 2018 4:43:56 PM
> **To:** Beeler, Cindy
> **Subject:** Re: Availability for Call on Aerial (Helicopter) IR Surveys
>
> Hi Cindy,
>
> I'd be happy to join the call. I'm available at both times, but would prefer the 1 - 2 MT slot (8 MT is 7 am here, which is a wee bit early).
>
> In the meantime, would it be possible to share preliminary data from the winter 2018 flyover so I can understand the differences between the two studies? It's okay if you can't share at the moment.
>
> Regards,
> Arvind

On Thu, Jun 7, 2018 at 3:40 PM, Beeler, Cindy <Beeler.Cindy@epa.gov> wrote:

Arvind -

With your background in studying detection thresholds of OGI, it would be helpful if we could have a conversation together with Seth Lyman (USU), David Lyons (EDF), as well as Eben Thoma and Jason Dewees (EPA) to understand the difference in % of facilities flown over with helicopter in the Uinta Basin with IR observations between the Lyons et al study conducted in summer 2014 and the recent winter 2018 flyover (6.6% vs. 0.5%).

We are all available on Monday, 6/11, 8-9 or 1-2 MT … any chance you could join us for a call? If so, which time do you prefer?

Thanks,

Cindy Beeler
US EPA Region 8
Tel: 303-312-6204
Beeler.Cindy@epa.gov